

What is claimed is:

- 1 1. A method comprising:
2 producing image data in an imaging device coupled to a processor-
3 based system by a serial bus comprising a bandwidth of at least twelve million
4 bits each second;
5 performing operations on the image data in the imaging device,
6 wherein the operations do not include compression of the image data; and
7 transferring the image data to the processor-based system through
8 the serial bus.
- 1 2. The method of claim 1, performing operations on the image data in
2 the imaging device further comprising:
3 performing dead pixel substitution on the image data.
- 1 3. The method of claim 1, performing operations on the image data in
2 the imaging device further comprising:
3 performing dark current subtraction on the image data.
- 1 4. The method of claim 1, performing operations on the image data in
2 the imaging device further comprising:
3 quantizing the image data.
- 1 5. The method of claim 1, performing operations on the image data in
2 the imaging device further comprising:
3 performing contrast enhancement on the image data.

1 6. The method of claim 1, performing operations on the image data in
2 the imaging device further comprising:
3 performing scaled color interpolation on the image data.

1 7. The method of claim 6, performing scaled color interpolation on the
2 image data further comprising:
3 identifying a sub-block of a Bayer patterned sensor in the imaging
4 device;
5 extracting a pair of green components from the sub-block; and
6 averaging the pair of green components to produce a new green
7 component.

1 8. The method of claim 7, further comprising:
2 extracting a red component from the sub-block;
3 extracting a blue component from the sub-block; and
4 producing a true-color pixel comprising the red component, the
5 blue component, and the new green component.

1 9. The method of claim 1, further comprising:
2 performing operations on the image data in the processor-based
3 system.

1 10. The method of claim 9, performing operations on the image data in
2 the processor-based system further comprising performing color interpolation on
3 the image data.

1 11. The method of claim 9, performing operations on the image data in
2 the processor-based system further comprising performing color space
3 conversion on the image data.

1 12. The method of claim 9, performing operations on the image data in
2 the processor-based system further comprising performing automatic white
3 balance and tone scale adjustment on the image data.

1 13. The method of claim 9, performing operations on the image data in
2 the processor-based system further comprising performing compression on the
3 image data.

1 14. The method of claim 1, transferring the image data to the
2 processor-based system through the serial bus further comprising transmitting
3 the image data over a bus that is compliant with a universal serial bus, revision
4 2, specification.

1 15. The method of claim 1, transferring the image data to the
2 processor-based system through the serial bus further comprising transmitting
3 the image data to the processor-based system at a rate higher than twelve
4 million bits per second.

1 16. An imaging device comprising:
2 a sensor to receive incident light and produce image data; and

3 an interface to connect the imaging device to a processor-based
4 system, wherein the imaging device sends uncompressed image data to the
5 processor-based system using a serial bus comprising a bandwidth that exceeds
6 twelve million bits each second.

1 17. The imaging device of claim 16, wherein the interface is compliant
2 with a Universal Serial Bus, Revision 2, specification.

1 18. The imaging device of claim 16, further comprising:
2 a software program to operate on the uncompressed image data.

1 19. The imaging device of claim 18, further comprising a read-only
2 memory wherein the software program performs dead pixel substitution on the
3 uncompressed image data using the read-only memory.

1 20. The imaging device of claim 19, wherein the software program
2 performs dark current subtraction on the uncompressed image data using the
3 read-only memory.

1 21. The imaging device of claim 20, further comprising a look-up table,
2 wherein the software program uses the look-up table to quantize the
3 uncompressed image data.

1 22. The imaging device of claim 21, wherein the software program
2 performs contrast enhancement on the uncompressed image data using the
3 look-up table.

1 23. The imaging device of claim 18, wherein the image data is Bayer-
2 patterned and the software program performs color interpolation on the
3 uncompressed image data by:

4 identifying a sub-block of the uncompressed image data;
5 averaging a pair of green components in the sub-block to produce
6 a new green component; and
7 producing a true-color pixel.

1 24. The imaging device of claim 23, wherein the true-color pixel
2 comprises:

3 a red component from the sub-block;
4 a blue component from the sub-block; and
5 the new green component.

1 25. An article comprising a medium for storing a software program to
2 enable a processor-based system to:

3 produce image data;
4 perform operations on the image data, wherein the operations do
5 not include compression; and

6 transfer the image data to a second processor-based system
7 through a serial bus comprising a throughput of not less than twelve million bits
8 each second.

1 26. The article of claim 25, further storing the software program to
2 enable the processor-based system to further:
3 optionally perform color interpolation in the processor-based
4 system or in the second processor-based system.

1 27. The article of claim 25, further storing the software program to
2 enable the processor-based system to further:
3 perform dead pixel substitution in the processor-based system.

1 28. The article of claim 25, further storing the software program to
2 enable the processor-based system to further:
3 perform dark current subtraction in the processor-based system.

1 29. The article of claim 25, further storing the software program to
2 enable the processor-based system to further:
3 quantize the image data in the processor-based system.

1 30. The article of claim 25, further storing the software program to
2 enable the processor-based system to further:
3 perform contrast enhancement in the processor-based system.

1 31. The article of claim 26, further storing the software program to
2 enable the processor-based system to perform color interpolation by:
3 identifying a sub-block of Bayer-patterned image data;
4 averaging a pair of green components in the sub-block to produce
5 a new green component; and
6 combining the new green component with a red component from
7 the sub-block and a blue component from the sub-block to produce a true-color
8 pixel.

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2 32. The article of claim 26, further storing the software program to
3 enable the processor-based system to transfer the image data to a second
4 processor-based system using a Universal Serial Bus, Revision 2, specification-
5 compliant bus.